Claim Amendments

Please amend the claims as follows:

1. (Currently Amended) A method for detecting and compensating for color misregistration comprising the steps of:

scanning ~~one of~~ a target having a black/white edge <u>or</u> ~~and~~ a solid color edge<u>;</u> ~~on a target;~~

generating a curve of gray values versus pixel spatial position for each color channel <u>scanned</u> on ~~one of~~ said black/white edge ~~and~~ <u>or on</u> said solid color edge <u>of a target;</u>

calculating a misregistration error by calculating an offset between color channels; ~~and~~

calibrating a unit <u>such as a scanner</u> using said calculated misregistration error<u>,</u>

<u>wherein said misregistration error is calculated for said black/white edge scanned on said target, and wherein said misregistration error between a first color channel and a second color channel is equal to the equation: error=diff1/diff2;</u>

<u>wherein diff1 is equal to the difference in gray values at a particular pixel position between said first color channel and said second color channel; and</u>

<u>wherein diff2 is equal to the difference in gray values between neighboring pixel positions in said first color channel.</u>

2. (Original) The method as recited in claim 1 further comprising the step of: storing said misregistration error.

3. (Cancelled)

4. (Currently Amended) The method as recited in claim 1, wherein said misregistration error is calculated for said solid color edge scanned on said target, <u>and wherein said misregistration error between a first color channel and a second color channel is equal to the equation:</u>

error=<u>diff3/diff2</u> [[diff1/diff2]]

wherein diff3 is equal to the equation: (GV0C2*diffGVC1/diffGVC2)-GV0C1

wherein GV0C2 is equal to the gray value at a particular pixel position for said second color channel;

wherein diffGVC1 is equal to the difference in gray values between neighboring pixel positions in said first color channel;

wherein diffGVC2 is equal to the difference in gray values between neighboring pixel positions in said second color channel;

and wherein GV0C1 is equal to the gray value at a particular pixel position for said first color channel;

and wherein diff2 is equal to the difference in gray values between neighboring pixel positions in said first color channel.

5. (Original) The method as recited in claim 1, wherein said step of calculating said misregistration error comprises the steps of:

fitting a second order curve to a plurality of data points on said curve of gray values for a first and a second color channel; and

determining a lateral shift required to align one or more of said plurality of data points for said first and said second color channel.

(Response to 24 August 2007 Office Action)

6. (Currently Amended) A computer program product ~~embodied in a machine~~ residing on computer-readable medium including computer-executable instructions for detecting and compensating for color misregistration comprising the programming steps of:

generating a curve of gray values versus pixel spatial position for each color channel scanned on a ~~one of said~~ black/white edge ~~and~~ or on a ~~said~~ solid color edge ~~scanned~~; of a target;

calculating a misregistration error by calculating an offset between color channels; and

calibrating a unit such as a scanner using said calculated misregistration error,

wherein said misregistration error is calculated for a scanned target having a black/white edge, and wherein said misregistration error between a first color channel and a second color channel is equal to the equation:

error=diff1/diff2

wherein diff1 is equal to the difference in gray values at a particular pixel position between said first color channel and said second color channel; and

wherein diff2 is equal to the difference in gray values between neighboring pixel positions in said first color channel.

7. (Original) The computer program product as recited in claim 6 further comprising the programming step of: storing said misregistration error.

8. (Cancelled)

(Response to 24 August 2007 Office Action)

9. (Currently Amended) The computer program product as recited in claim 6, wherein said misregistration error is calculated for said solid color edge scanned on said target, <u>and</u> wherein said misregistration error between a first color channel and a second color channel is equal to the equation:

error=<u>diff3/diff2</u> [[diff1/diff2]]

wherein diff3 is equal to the equation: (GV0C2*diffGVC1/diffGVC2)-GV0C1

wherein GV0C2 is equal to the gray value at a particular pixel position for said second color channel;

wherein diffGVC1 is equal to the difference in gray values between neighboring pixel positions in said first color channel;

wherein diffGVC2 is equal to the difference in gray values between neighboring pixel positions in said second color channel; and

wherein GV0C1 is equal to the gray value at a particular pixel position for said first color channel; and

wherein <u>diff2</u> [[diff3]] is equal to the difference in gray values between neighboring pixel positions in said <u>first</u> ~~second~~ color channel.

10. (Original) The computer program product as recited in claim 6, wherein said programming step of calculating said misregistration error comprises the programming steps of:

fitting a second order curve to a plurality of data points on said curve of gray values for a first and a second color channel; and

determining a lateral shift required to align one or more of said plurality of data points for said first and said second color channel.

11. (Currently Amended) A system, comprising:

a memory operable for storing a computer program for detecting and compensating for color misregistration;

a processor coupled to said memory, wherein said processor, responsive to said computer program, comprises:

circuitry operable for generating a curve of gray values versus pixel spatial position ~~generating a curve of gray values versus pixel spatial position~~ for each color channel <u>scanned a</u> on ~~one of said~~ <u>a</u> black/white edge ~~and~~ <u>or on a</u> ~~said~~ solid color edge <u>of a target</u> ~~scanned~~;

circuitry operable for calculating a misregistration error by calculating an offset between color channels; and

circuitry operable for calibrating a unit <u>such as a scanner</u> using said calculated misregistration error<u>,</u>

<u>wherein said misregistration error is calculated for a scanned target having a black/white edge; and wherein said misregistration error between a first color channel and a second color channel is equal to the equation:</u>

<u>error=diff1/diff2</u>

<u>wherein diff1 is equal to the difference in gray values at a particular pixel position between said first color channel and said second color channel; and</u>

<u>wherein diff2 is equal to the difference in gray values between neighboring pixel positions in said first color channel.</u>

12. (Original) The system as recited in claim 11, wherein said processor further comprises:

circuitry operable for storing said misregistration error.

13. (Cancelled)

14. (Currently Amended) The system as recited in claim 11, wherein said misregistration error is calculated for <u>a scanned target having a</u> ~~said~~ solid color edge ~~scanned~~; <u>and</u> wherein said misregistration error between a first color channel and a second color channel is equal to the equation:

error=<u>diff3/diff2</u> [[diff1/diff2]]

wherein diff3 is equal to the equation: (GV0C2*diffGVC1/diffGVC2)-GV0C1

wherein GV0C2 is equal to the gray value at a particular pixel position for said second color channel;

wherein diffGVC1 is equal to the difference in gray values between neighboring pixel positions in said first color channel;

wherein diffGVC2 is equal to the difference in gray values between neighboring pixel positions in said second color channel; and

wherein GV0C1 is equal to the gray value at a particular pixel position for said first color channel; and

wherein diff2 is equal to the difference in gray values between neighboring pixel positions in said first color channel.

15. (Original) The system as recited in claim 11, wherein said circuitry operable for calculating said misregistration error comprises:

circuitry operable for fitting a second order curve to a plurality of data points on said curve of gray values for a first and a second color channel; and

circuitry operable for determining a lateral shift required to align one or more of said plurality of data points for said first and said second color channel.

16. (Currently Amended) A scanner, comprising:

a reading unit, wherein said reading unit comprises:

an illumination source configured to emit light onto a surface; and

a plurality of charge coupled device arrays configured to store electric charge from light reflected from said surface;

a controller coupled to said reading unit, wherein said controller is configured to sequentially activate said plurality of charge coupled device arrays, wherein said controller is further configured to output said electrical charge stored in said plurality of charge coupled device arrays as digital signals, wherein said controller comprises:

a memory operable for storing a computer program for detecting and compensating for color misregistration; and

a processor coupled to said memory, wherein said processor, responsive to said computer program, comprises:

circuitry operable for generating a curve of gray values versus pixel spatial position for each color channel generating a curve of gray values versus pixel spatial position for each color channel scanned on a target having a ~~one of said~~ black/white edge ~~and~~ or a ~~said~~ solid color edge; ~~scanned on one of a black/white edge or and a solid color edge scanned on a target;~~

circuitry operable for calculating a misregistration error by calculating an offset between color channels; and circuitry operable for calibrating said scanner using said calculated misregistration error.

wherein said misregistration error is calculated for said black/white edge on a scanned target, and wherein said misregistration error between a first color channel and a second color channel is equal to the equation;

error=diff1/diff2

wherein diff1 is equal to the difference in gray values at a particular pixel position between said first color channel and said second color channel; and

wherein diff2 is equal to the difference in gray values between neighboring pixel positions in said first color channel.

17. (Original) The system as recited in claim 16, wherein said processor further comprises:

circuitry operable for storing said misregistration error.

18. (Cancelled)

19. (Currently Amended) The system as recited in claim 16, wherein said misregistration error is calculated for said solid color edge scanned on said target, wherein said misregistration error between a first color channel and a second color channel is equal to the equation:

error=<u>diff3/diff2</u> [[diff1/diff2]]

wherein <u>diff3</u> [[diff1]] is equal to the equation: (GV0C2*diffGVC1/diffGVC2)-GV0C1

wherein GV0C2 is equal to the gray value at a particular pixel position for said second color channel;

wherein diffGVC1 is equal to the difference in gray values between neighboring pixel positions in said first color channel;

wherein diffGVC2 is equal to the difference in gray values between neighboring pixel positions in said second color channel; and

wherein GV0C1 is equal to the gray value at a particular pixel position for said first color channel; and

wherein diff2 is equal to the difference in gray values between neighboring pixel positions in said first color channel.

20. (Original) The system as recited in claim 16, wherein said circuitry operable for calculating said misregistration error comprises:

circuitry operable for fitting a second order curve to a plurality of data points on said curve of gray values for a first and a second color channel; and

circuitry operable for determining a lateral shift required to align one or more of said plurality of data points for said first and said second color channel.